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MATHEMATICS–SCIENCE

primary division–volume one

EDUCATIONAL TELEVISION SERIES 1967-68

Educational Television Branch
ONTARIO DEPARTMENT OF EDUCATION
1670 Bayview Avenue/Toronto 17

program schedule

MATHEMATICS—SCIENCE
primary

9 programs 15 minutes each

PROGRAM NO.	CBC 9:30	CBC Repeat 9:30	CBOT 9:30	CHCH 9:30	CJOH CJSS 9:30
1	Oct. 19	Nov. 9	Oct. 19	Nov. 29	Nov. 22
2	Oct. 26	Nov. 16	Oct. 26	Dec. 6	Nov. 29
3	Nov. 2	Nov. 23	Nov. 2	Dec. 13	Dec. 6
4	Jan. 11	Feb. 1	Jan. 11	Dec. 20	Dec. 13
5	Jan. 18	Feb. 8	Jan. 18	Jan. 10	Dec. 20
6	Jan. 25	Feb. 15	Jan. 25	Jan. 17	Jan. 10
7	Mar. 28 (9:45)	Apr. 4 (9:45)	Apr. 10	Mar. 13 (9:45)	Mar. 6 (9:45)
8	Apr. 11 (9:45)	Apr. 18 (9:45)	Apr. 17	Mar. 27 (9:45)	Mar. 13 (9:45)
9	Apr. 25 (9:45)	May 2 (9:45)	Apr. 24	Apr. 3 (9:45)	Mar. 27 (9:45)

cover photograph courtesy of Ontario Department of Lands and Forests

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IMPORTANT *PLEASE NOTE!*

Principals of schools are asked to fill in the label below and indicate the quantity required for VOLUME TWO OF THIS GUIDE, by circling the figures 2 5 or 8.

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1670 BAYVIEW AVENUE, TORONTO 17, ONTARIO

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MATH-SCIENCE, Volume 2 2 5 8

MATHEMATICS—SCIENCE

9 programs of 15 minutes each for primary students.

This is volume 1 of a 2 volume series. Volume 2 will contain notes for programs 4 to 9.

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FAMILIAR THINGS IN THE KITCHEN

Program four — *Popcorn*

Program five — *Drops*

Program six — *Jelly*

SEEDS AND GROWTH

Program seven — *The Importance of Plants and Seeds*

Program eight — *The Growth of Seeds*

Program nine — *The Uses of Seeds*

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Series produced by:

PEGGY LIPTROTT

general introduction

This series is presented in three sections, each consisting of three programs.

Shapes in Nature is concerned with the resemblance of many natural and man-made objects to basic geometric figures.

Familiar Things in the Kitchen presents some experiments using well known materials; in these programs the emphasis is on the *method* of learning.

Seeds and Growth explores the miracle of seed germination and plant growth.

It is not intended that the programs be used as a kind of visual textbook. No attempt is made to present a large body of facts, and there is no exploration in depth of any concept or understanding. The presentations are intended rather as a "launching pad" for further activity on the part of the children. We will see children active in a variety of ways; observing and recording, measuring, experimenting, making collections, comparing, and discussing common problems. In short, the discovery-activity approach to learning is stressed. It is expected that the children, with the help of the teacher, will be stimulated to further inquiry. Considerable thought should be given, therefore, to the classroom activities which will follow the telecast.

It is a major purpose of the series that children be helped to discover for themselves the relationship between the sciences and mathematics. The programs in these presentations emphasize the dependence of science upon mathematics, and they show also the debt owed by mathematics to the natural world.

Although designed for the primary division, generally, the first group are beamed particularly at the second year level, the second group at the first year level and the third group at the third year level. The three programs are related closely to Curriculum P1, J1, Interim Revision Science.

program one

JOURNEY INTO NATURE

This program is designed to stimulate the children's interest in nature and to emphasize the beauty and wonder of fundamental geometric forms.

PROGRAM CONTENT

A class of grade 2 children is seen disembarking from a bus. We are told by the narrator that this class has come to the countryside to look for things which have interesting patterns and shapes.

The children spread out in the fields, along the river bank, and in the woodlot. The camera follows them, individually and in groups, as they discover and examine various objects. There is no narration in this program, the viewing class being left to make their own discoveries.

In sequence we see the following:
— wild flowers
— dandelion heads
— poplar trees
— turtle eggs
— butterflies
— mushrooms
— acorns
— inch worms
— fungus growth
— fern leaves
— flower petals
— a wasp's nest
— a log
— stones and pebbles
— a moving fish in the water, and a girl sketching the fish.

Each of these objects represents a common geometrical shape, but no attempt is made during the program to draw attention to this fact.

At the end of the telecast, the children board the bus for the return journey to the school.

SUGGESTED PRE-VIEWING ACTIVITIES

These should be brief. Tell the class that they are going to join a group of children on a field trip to the country. For consideration during the program, these questions might be asked:
— What things do you think we might see on the trip?
— Could we make a list of interesting things we see as the program proceeds?

SUGGESTED POST-VIEWING ACTIVITIES

1. A discussion of the program
   - — What did the children on the screen see?
   - — Compare our list with what we saw.
   - — The children could be asked to draw some of the things seen on the screen. The class could then, as a group, identify the basic shapes of these things. The log, for instance, would be identified as a cylinder.
2. The children could be asked to bring from their homes, or from the surrounding area, other objects with interesting shapes. These objects could then be classified in sets (e.g. a set of circular objects).
3. If it is possible, a field trip similar to the one seen on the television program could be organized.
4. A number of creative activities might be undertaken. For example:
   a. Physical Education—children might be asked to make various shapes with their bodies.
   b. Mathematics/Science—have children bring natural objects—e.g. a butterfly—and identify the geometric figures found with it.
   c. Art—cut the various shapes freehand and use them to create pictures, animals, etc.
   d. English—write stories about the animals in b. and c. above.

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program two

WHAT DID WE SEE

To work with the natural shapes in creative activities to gain familiarity with their variety, and to obtain knowledge of the basic geometric forms.

PROGRAM CONTENT

Mrs. Bisbee's class has brought to the classroom a number of objects (plants, rock, and animals) and in this program the children engage in a variety of activities designed to help them learn more about the shapes of these objects.

Brief sequences from the first program are used to relate the discovery of the natural object to the classroom activity connected with it.

We see children examining a terrarium and then attempting to discover the geometric shapes represented in the body of a toad. The little girl sketching a swimming fish in the first program is now seen making a painting of it. Children are seen also in picture-making activities—one boy draws the poplar trees, a girl is drawing flowers. A group of children is seen modelling the natural shapes, while another group is engaged in mounting some of the objects collected.

At various times during the program we observe children using basic geometric shapes (made from pipe cleaners) in an attempt to classify the objects in groups of similar shapes.

SUGGESTED PRE-VIEWING ACTIVITIES

1. Classes who have seen the first program, and have carried out activities as a result of that program, might review briefly what they have done and learned. The teacher can then suggest that it will be interesting to observe what the children in Mrs. Bisbee's class have done. So the children will be comparing activities.
2. For other classes a brief lesson might be useful. The children might be encouraged to bring things with interesting shapes to school (e.g., rocks, flowers, small animals and insects, fungus growths, logs, etc.). Time could be spent examining these shapes, assembling them in collections of similar shapes, trying to find shapes already known (e.g., triangles, squares, circles, etc.)

SUGGESTED POST-VIEWING ACTIVITES

a. Some teachers may wish to give some of the shapes their formal geometric names at this point.
b. Children could engage in some of the activities seen in the program.
c. The children could make models of the formal geometric shapes—triangles, squares, rectangles, cubes, prisms, circles, spheres, etc.—using construction paper, clay or plasticene.

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program three

USING SHAPES

The purpose of this program is to introduce the language of shapes and to show how man uses geometric shapes for his own purposes.

PROGRAM CONTENT

The program begins with a random series of shots, various natural forms which illustrate the shapes studied in the preceding programs. From these, the precise geometric forms are developed and similarities made obvious. We are then introduced to the language of shapes.

A series of pictures is then shown to demonstrate that in our homes are found many shapes which have been designed by people for their own uses. The uses of man-made geometric shapes beyond the home—in industry, in recreation, in transportation, etc. —are then illustrated.

The program concludes with a brief test; its main purpose to involve the children in the teaching-learning situation.

SUGGESTED PRE-VIEWING ACTIVITIES

1. The children will require a pencil and a piece of paper of page-size (about 8½″ x 11″). It should be divided into eight equal sections and numbered.
2. The children might make models of the geometric shapes if they have not already done so.
3. The teacher could invite the children to bring things with interesting patterns and shapes from home—things that have been made by man. They could be matched with the various geometric shapes.
4. If this is the first program in the series to be viewed by the class, some of the activities described in the previous notes could be carried on. As an immediate prelude to viewing this program the teacher could say, "Today we are going to learn something new about shapes. And near the end of the program you will get a chance to play a little game."

SUGGESTED POST-VIEWING ACTIVITIES

1. The class can collect pictures which illustrate interesting geometric shapes, and make a display. The pictures could be arranged in groups of similar shapes.
2. The teacher could arrange activities to continue the learning of the geometric terms which may be new to the children.
3. The children could put together various geometric shapes to make abstract pictures or designs. Or, using pipe cleaners, they could make mobiles using these shapes.

FOR OPTIMUM VIEWING CONDITIONS

1. Review Teacher's Guide well in advance of each telecast.

2. Have the set on and adjusted, sound off, prior to telecast.

3. Assure student comfort
   - — located for best viewing
   - — no glare, reflection on screen
   - — room properly ventilated
   - — suggested materials ready
   - — within maximum of 20′ of the screen

4. Seat yourself where you can observe both the telecast and your students' reactions.

This diagram shows the suggested placement of the television set: